

AMENDMENTS TO THE CLAIMS

Claim 1 (Cancelled)

2. (Previously Presented) A process as defined in claim 35, wherein the filler is treated with inorganic colloidal particles so that the surface of the filler particles will at least partly consist of inorganic colloidal particles.

3. (Previously Presented) A process as defined in claim 2, wherein the filler is pre-treated with inorganic anionic colloidal particles.

4. (Previously Presented) A process as defined in claim 3, wherein the anionic colloidal particles consist of synthetic silicate and/or hectorite.

5. (Previously Presented) A process as defined in claim 3, wherein the anionic colloidal particles consist of smectite or montmorillonite-based (bentonite)silicate.

6. (Previously Presented) A process as defined in claim 3, wherein the anionic colloidal particles consist of colloidal silica sol and/or polysilicic acid.

7. (Previously Presented) A process as defined in claim 3, wherein the anionic colloidal particles consist of colloidal metal silicate pertaining to synthetic silicates and having magnesium as the predominant cation.

8. (Previously Presented) A process as defined in claim 35, wherein, the inorganic colloidal particles have an average particle diameter in the range of 1-80 nm.

9. (Previously Presented) A process as defined in claim 35, wherein the powder formed of inorganic colloidal particles has a specific area (BET) in the range of 30-1,000 m²/g.

10. (Previously Presented) A process as defined in claim 35, wherein the filler is pre-treated with inorganic colloidal particles in an amount varying in the range of 50-10,000 g/t, calculated on the total amount of dry filler.

11. (Previously Presented) A process as defined in claim 35, wherein the entire filler amount intended for the stock is pre-treated with inorganic colloidal particles.

12. (Previously Presented) A process as defined in claim 35, wherein only a portion of the filler amount intended for the stock is pre-treated with inorganic colloidal particles, while the other portion preferably is in an aqueous suspension of cellulose.

13. (Previously Presented) A process as defined in claim 12, wherein the weight proportion of inorganic colloidal particles in the total weight of these particles and the pre-treated portion of filler amount is in the range of 0.5-20 kg/t.

14. (Previously Presented) A process as defined in claim 35, wherein the filler is treated by combining a slurry or a sol of inorganic colloidal particles and a filler slurry.

15. (Previously Presented) A process as defined in claim 14, wherein the slurry or sol of inorganic colloidal particles has a concentration of 0.5-30%.

16. (Previously Presented) A process as defined in claim 35, wherein the filler is an inorganic particulate substance.

17. (Previously Presented) A process as defined in claim 16, wherein the inorganic particulate substances are selected from the group consisting of kaolin, calcinated kaolin, calcium carbonate, talcum, titanium dioxide, calcium sulphate, synthetic silicate and aluminum hydroxide fillers and mixtures thereof.

18. (Previously Presented) A process as defined in claim 17, wherein the inorganic particulate substance is titanium dioxide.

19. (Previously Presented) A process as defined in claim 18, wherein the titanium dioxide has an average particle diameter in the range of 150-350 nm.

20. (Previously Presented) A method as defined in claim 35, wherein the total amount of filler accounts for 10-60%, of the total amount of the dry weight of the stock.

21. (Previously Presented) A method as defined in claim 35, wherein the aqueous filler slurry has a concentration of 5-70%.

22. (Previously Presented) A method as defined in claim 35, wherein the cellulose of the aqueous suspension of cellulose originates from chemical, mechanical or chemo-mechanical pulp, recycled fibers or a mixture thereof.

23. (Previously Presented) A method as defined in claim 35, wherein the aqueous suspension of cellulose has a consistency in the range of 1-50 g/l.

24. (Previously Presented) A method as defined in claim 35, wherein the aqueous slurry is combined with an aqueous suspension of cellulose to form a stock having a total consistency in the range of 3-20 g/l.

25. (Previously Presented) A method as defined in claim 35, wherein the cationic retention agent is a cationic polymer having a molecular weight of at least 500,000 g/mol.

26. (Previously Presented) A method as defined in claim 25, wherein the cationic polymer is cationic starch or a copolymer of acrylamide and a cationic comonomer.

27. (Previously Presented) A method as defined in claim 26, wherein the copolymer of acrylamide and the cationic comonomer is a copolymer of acrylamide and acryloyloxyethyltrimethyl ammonium chloride having a molecular weight above 500,000 g/mol.

28. (Previously Presented) A method as defined in claim 25, wherein the amount of cationic polymer is in the range of 25-10,000 g/t of dry matter of said stock.

29. (Previously Presented) A method as defined in claim 35, wherein the stock is treated with anionic colloidal particles, which may be different from said inorganic colloidal particles used for filler pre-treatment.

30. (Previously Presented) A method as defined in claim 35, wherein the stock is filtered through a steel wire having 100-300 mesh apertures to form paper.

31. (Previously Presented) A method as defined in claim 35, including the use of other paper-improving agents, and other retention chemicals, size, dies and fiber binders.

Claims 32-34 (Cancelled)

35. (Currently Amended) A process for the manufacturing of paper, comprising the steps of:

pre-treating a filler with inorganic colloid particles by combining an aqueous slurry or a sol of inorganic colloidal particles and a filler slurry, said particles having an average particle size in water of less than 100 nm,

~~suspending the pretreated filler to form an aqueous slurry,~~

combining the aqueous slurry of pretreated filler with an aqueous suspension containing cellulose fibers to form a stock, comprising the steps of:

treating the formed stock at least with a cationic retention agent which is a cationic polymer having a molecular weight of at least 500,000 g/mol, and

~~filtering and drying~~ the treated stock to form a web and drying the web to form said paper.

36. (Previously Presented) A process for the manufacturing of paper, comprising the steps of:

pre-treating titanium dioxide with inorganic colloid particles,
suspending the pretreated titanium dioxide to form an aqueous slurry,
combining the aqueous slurry with an aqueous suspension containing cellulose fibers to form a stock, wherein the titanium dioxide is pretreated with colloidal metal silicate of synthetic silicates and having magnesium as the predominant metal and an average particle diameter in the range of 1 to 25 nm, and that the process has the further steps of:

treating the formed stock with a cationic retention agent which is a cationic polymer having a molecular weight of at least 500,000 g/mol, and
filtering and drying the treated stock to form said paper.

37. (Previously Presented) A process as defined in claim 35, wherein, the inorganic colloidal particles have an average particle diameter in the range of 1-50 nm.

38. (Previously Presented) A process as defined in claim 35, wherein, the inorganic colloidal particles have an average particle diameter in the range of 1-25 nm.

39. (Previously Presented) A process as defined in claim 35, wherein the powder formed of inorganic colloidal particles has a specific area (BET) in the range of 100-1,000 m²/g.

40. (Previously Presented) A process as defined in claim 35, wherein the filler is pre-treated with inorganic colloidal particles in an amount varying in the range of 500-5,000 g/t, calculated on the total amount of dry filler.

41. (Previously Presented) A process as defined in claim 12, wherein the weight proportion of inorganic colloidal particles in the total weight of these particles and the pre-treated portion of filler amount is in the range of 1-10 kg/t.

42. (Previously Presented) A process as defined in claim 14, wherein the slurry or sol of inorganic colloidal particles has a concentration of 1-10%.

43. (Previously Presented) A process as defined in claim 18, wherein the titanium dioxide has an average particle diameter in the range of 200 nm.

44. (Previously Presented) A method as defined in claim 35, wherein the total amount of filler accounts for 20-50%, of the total amount of the dry weight of the stock.

45. (Previously Presented) A method as defined in claim 35, wherein the aqueous filler slurry has a concentration of 20-50%.

46. (Previously Presented) A method as defined in claim 35, wherein the aqueous suspension of cellulose has a consistency in the range of 5-15 g/l.

47. (Previously Presented) A method as defined in claim 35, wherein the aqueous slurry is combined with an aqueous suspension of cellulose to form a stock having a total consistency in the range of 7-13 g/l.

48. (Previously Presented) A method as defined in claim 25, wherein the amount of cationic polymer is in the range of 50-1,000 g/t of dry matter of said stock.

49. (Previously Presented) A method as defined in claim 35, wherein the stock is treated with anionic colloidal particles, which may be identical to said inorganic colloidal particles used for filler pre-treatment.